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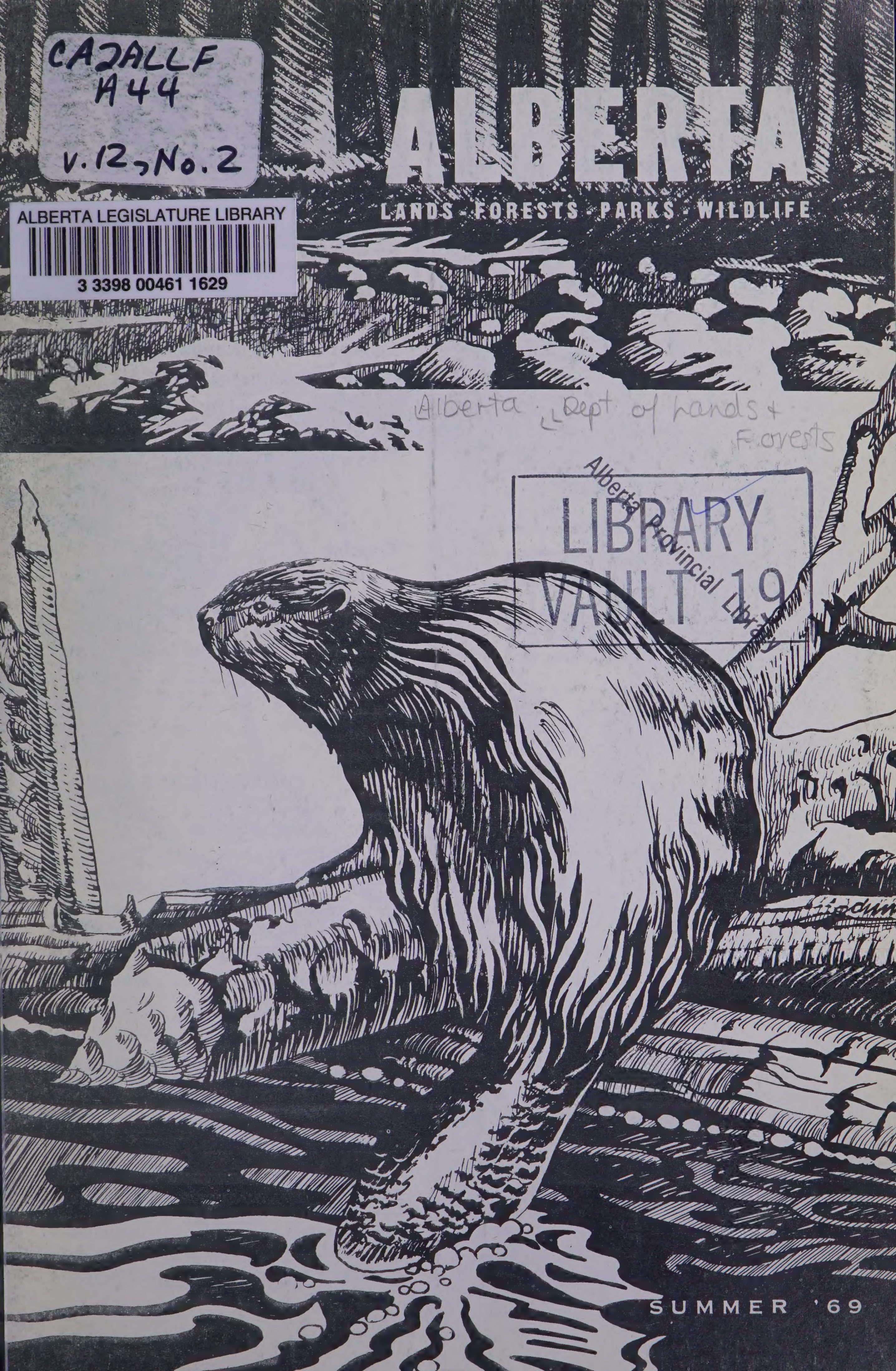
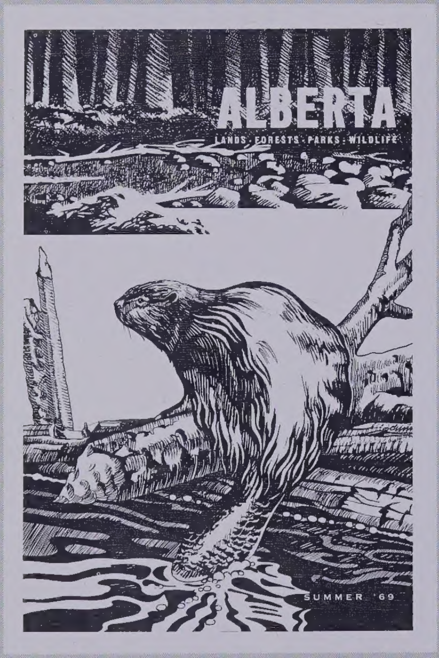


SUMMER '69

DEDICATED TO THE WISE USE AND MANAGEMENT OF THE PROVINCE'S RENEWABLE NATURAL RESOURCES; ITS LAND, FORESTS, PARKS AND WILDLIFE.

ABOUT OUR COVER



The Beaver, our "Flat Tailed Friend", was responsible for opening up the west.

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ALBERTA

Lands - Forests - Parks - Wildlife

Vol. 12, No. 2 Summer, 1969

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HON. DR. J. DONOVAN ROSS,
Minister

V. A. WOOD,
Deputy Minister

TRAPPING
AS AN INDUSTRY

JIM STEWART — FISH AND WILDLIFE OFFICER

On May 2, 1670, King Charles II granted a Charter to "The Governor and Company of Gentlemen Adventurers of England, trading into Hudson's Bay". This Act started the career of a unique trading organization, which after three hundred years is still going strong, and is commonly known as the Hudson's Bay Company. I once heard a Scottish lad, an employee of the "Company", refer to it as "The Here before Christ Company".

The granting of this Charter was also the start of the trapping industry for profit in Canada.

It is generally accepted that the natives were the ultimate in trappers and fur handlers. This is most certainly not correct. The Indian before the arrival of the white man trapped for food, with the skins being used for clothing and shelter. The methods used for stretching and finishing his skins prepared them only for his personal use. It was not until the white man arrived with steel traps and wire snares that trapping was put on a mass production basis. It was then that the Indian discovered his surplus take in fur was a real source of revenue. This extra income was expressed in the form of guns, cooking equipment, blankets and clothing. He also found the advantages in the use of staple food stuffs; salt, tea, sugar, flour, and of course tobacco. As one native said, "Tea, soap, sugar, and flannelette".

In the beginning the native trapper had to be shown how the white man wanted pelts of the various fur bearers skinned and stretched, and even today the native method of skinning and stretching sometimes leaves something to be desired, at any rate from the dealers viewpoint.

Methods and techniques in trapping have changed to a marked degree over the years; more sophisticated scents, baits, and improved traps. A few years ago Fred Connibear, a trapper from Fort Smith, N.W.T., designed a trap to which he gave his name — the Connibear Humane Trap. This trap has done a great deal to increase the trapping success of wild fur. It is proven particularly in the trapping of beaver. This trap has the advantage of not only being a humane trap insofar as it kills instantly but also this Connibear Trap has the endorsement of the Society for the Prevention of Cruelty to Animals. Also it does away completely with the loss and crippling of animals through the cutting off of legs, permitting the escape of a crippled animal, something that is found all too frequently in the conventional leg hold steel trap. The Connibear can be set in runs removed some considerable distance from a beaver lodge and promotes the taking of larger beaver. This leaves the kits and yearlings which do not seem so inclined to venture too far from home, a situation that is desirable, both from a conservation wise and an economic standpoint. The larger beaver naturally bring the better prices. Also, there is no dis-

FUR TRADERS IN THE NORTH

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ERNEST BROWN.
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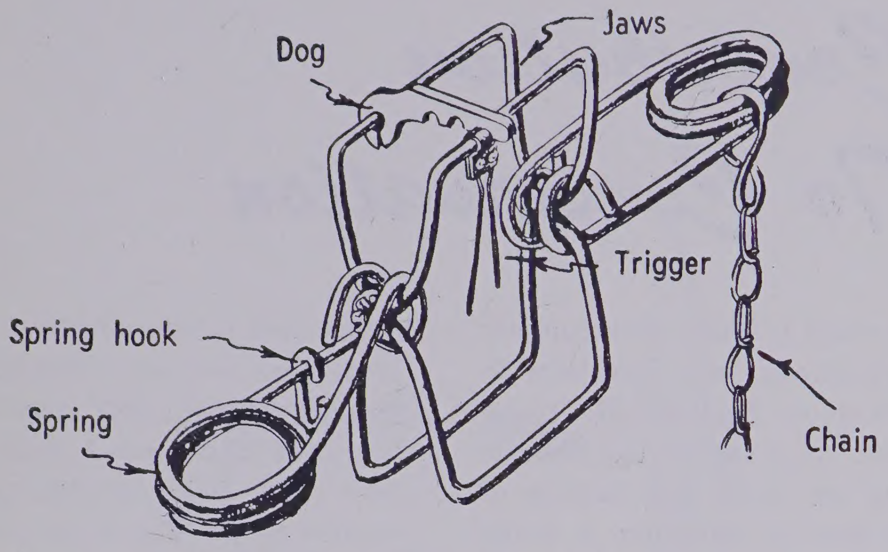
FUR TRADERS IN THE FAR NORTH

CONIBEAR TRAP



Conibear trap. Developed by a professional trapper, this practical, humane trap offers new opportunities to increase fur yield.

tinction in royalty between a blanket beaver worth $35.00 and a kit or yearling worth $3.00. The royalty of seventy-five cents which is paid to the provincial government, is the same for both. The amount of effort put into the trapping of a blanket beaver is exactly the same as for the taking of a yearling. The reason for trapping the larger animal is obvious.

I feel some considerable effort should be made to make the trapper, native and white, aware of stretching and handling methods more in line with what is most acceptable to the dealer. I have mentioned before dealing with the taking of beaver, the large against the small. The same amount of effort is required in the trapping of both. To carry this a step further, the same effort is expended in the trapping of poorly-handled fur as for the taking of well-handled fur. Again, it is a straight matter of simple economics, a little extra care expended in proper stretching and fleshing to bring the maximum return for the merchandise against a careless job that brings little or nothing. Now of course this applies to all types of fur, squirrels, rats, lynx, coyotes, wolves; all fur taken in season.

In summing up, the value of the return for wild fur for the past five years, as taken from the Alberta Provincial Records, is approximately $8,000,000. I appreciate that compared to the return from some of our other natural resources, this sum is pretty small potatoes. On the other hand, this $8,000,000 has gone directly into the hands of the Treaty, the Metis and the settler who are the people most likely to require welfare or government assistance. These are the people who most desperately need this additional income.

In view of this I feel that the Fish and Wildlife Division should adopt a vigorous campaign to put this valuable resource back into the position it occupied May the 2nd, 1670, when the Company of Gentlemen Adventurers first came into Hudson's Bay.

One Man's Contribution To Conservation

Henry Stelfox is a tall, distinguished-looking Englishman, who was born in 1884 in Cheshire, England. He is an African chief. As a very young man he lived among the Zulus and Basutos of Africa, the Basutos made him a blood-brother, with the significant name Ramosoanyi Ramoulili — "The Little white man who sees in the dark". That denotes more than good eye-sight . . . it implies uncanny vision . . . a second-sight into the mysteries of nature . . . that follows him wherever he goes.

Henry Stelfox is a visionary . . . but he also has the stern qualities of a realist, for he homesteaded in Alberta in 1907 on a place forty miles west of Wetaskiwin. He travelled on foot, packed his supplies in on his back, seeded the virgin soil with primitive tools, and was hailed out four successive years. There were few comforts in this harsh pioneer life, but there was a wild beauty, wide horizons, and the old promise that next year would be better. Henry Stelfox got down to his last dollar more than once . . . but he claims a kick can boost a man forward as well as get him down. He and his wife have raised nine children, and he has worked hard at being farmer, rancher, real estate agent, auctioneer, clerk, stock-raiser and veterinarian.

Henry Stelfox is the best friend the district Indians have ever had. He admires their native gentility . . . and has made their welfare a lifelong hobby. He has helped plan their reservations . . . has lived and hunted with them, and been their voice in dealing with the outside world. For many years he has represented them on councils and government associations.

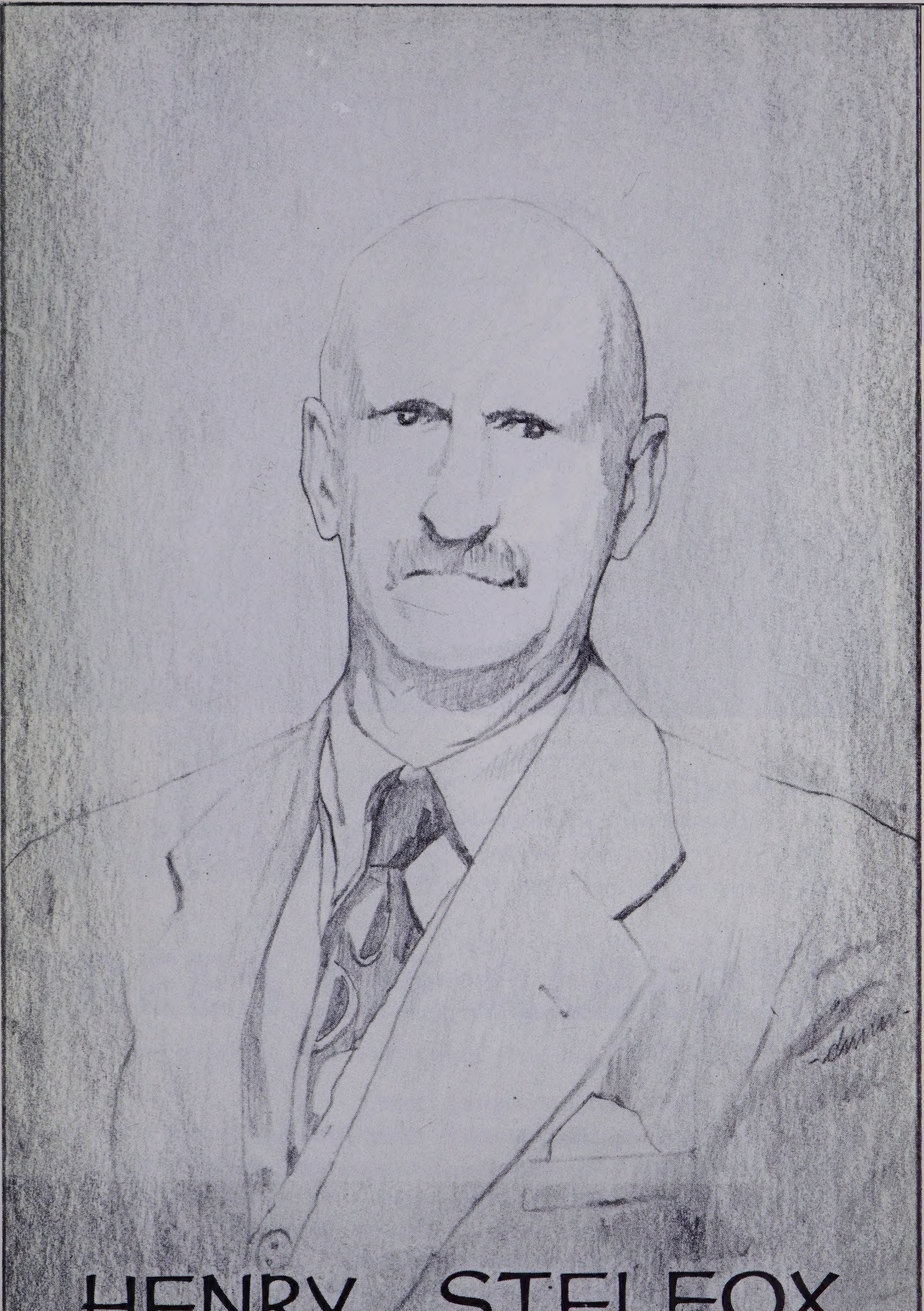
In September, 1954, Henry Stelfox was awarded the Julian Crandall conservation trophy, Canada's highest conservation award. The award was made in recognition of his work in the conservation of wildlife during the last 40 years on the eastern slopes of the Rocky Mountains.

From 1945 to 1958 he was a member of the Game Advisory Council of the provincial Fish and Game Branch.

In 1956, the Geographic Board of Alberta named Mt. Stelfox in his honour.

In 1958, he was appointed a Geographer by the Royal Society of Canada. He has received both the Fulton trophy and the Freeman trophy from the Alberta Fish and Game Association for his efforts on behalf of conservation.

Henry Stelfox has spent many years in the quiet places of Alberta . . . and has never had a dull moment. The whole cloth of his life is rich and warm, woven with the varied threads he has found in the district of Rocky Mountain House.


HENRY STELFOX

Above The Timber-Line

HENRY STELFOX

The setting sun,
Beyond the mountains crest.
Has now begun,
Its travel northward from the west.

A little band of big-horn sheep,
Are seen to move to higher ground.
To where a safer place to sleep,
Can soon be found.

Up high, where many a passing cloud,
Hides them from prowlers down below,
While darkness covers them with nature's shroud,
Until the morn, when it is time to go.

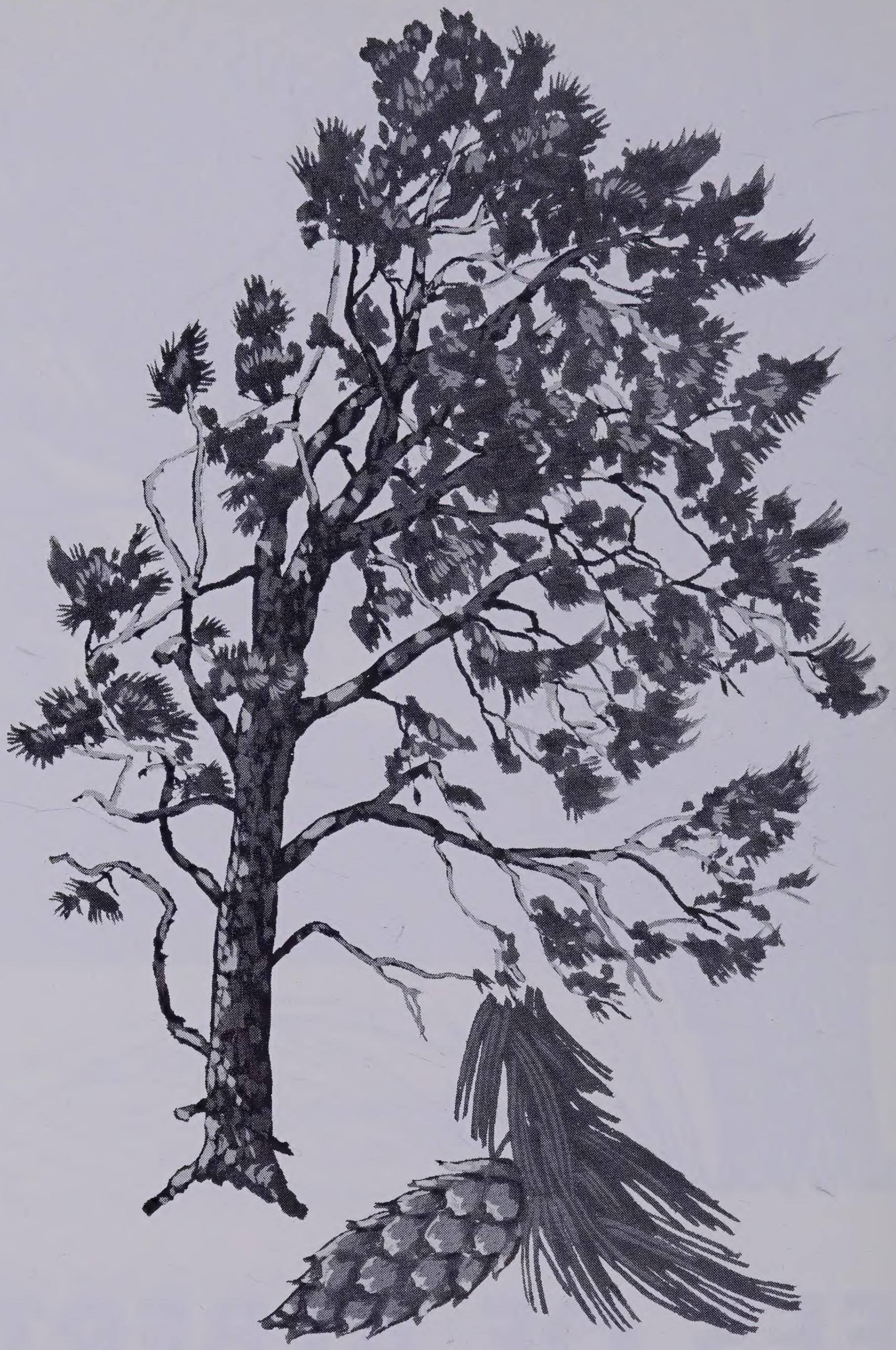
In search of food above the timber line,
And melted snow to quench their thirst.
So cool and fine,
An old ewe samples first.

TREES OF ALBERTA

ART WORK BY MILT FREDLUND, FILM AND PHOTO BRANCH

Difference between trees and shrubs is at times hard to determine because some species are large trees under normal conditions but merely shrubs near the limits of their range. Prevailing winds can, by drying the windward buds as they form, cause a lopsided, leeward-directed crown, as in exposed trees on mountain tops. Other conditions, such as light, moisture, soil, space and temperature, also have marked effects on their development.

The form, not the size, is often the decisive feature; dwarf trees though small in size retain the distinctive characteristics of a tree — a dominant woody stem, or trunk, and a definite crown of foliage.

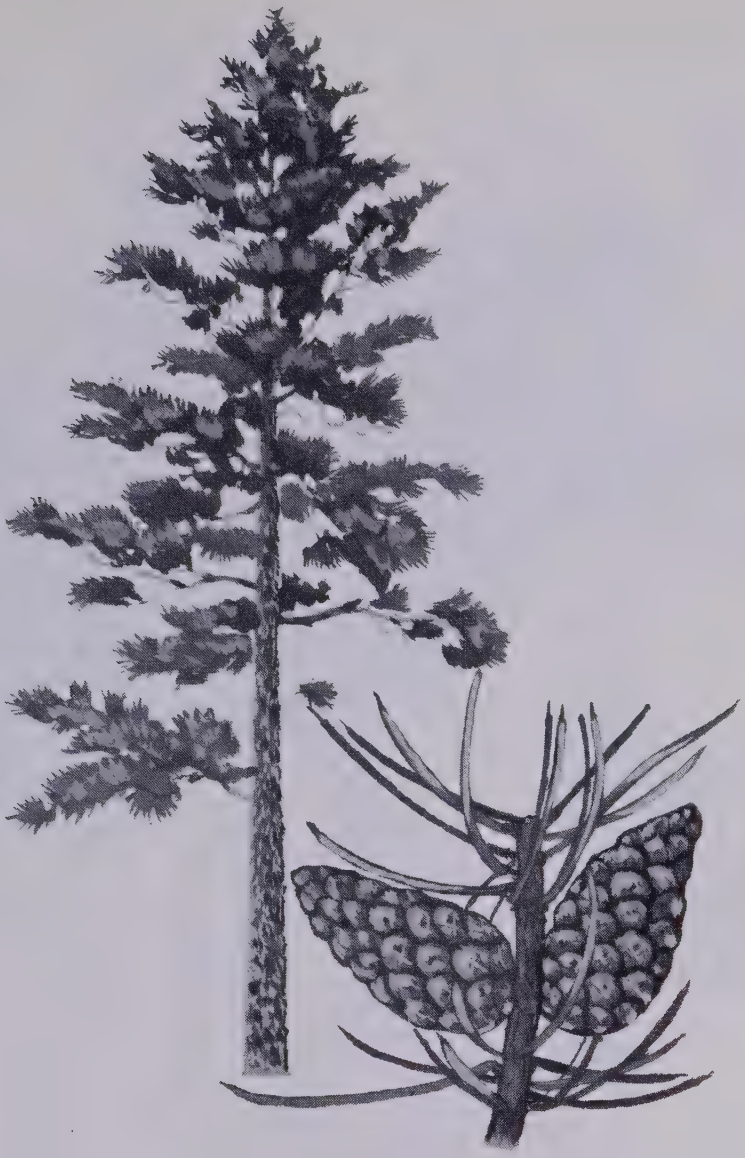


LIMBER PINE

(Pinus flexilis)

A small, deformed, scrubby mountain tree, with short twisted limbs; bark silvery grey on young trees becoming very rough and almost black on maturity.

Leaves:	Needle-like, thick, stiff, sharp-pointed, slightly curved, in bundles of 5, tightly clustered at the ends of twigs, 1½ - 3 inches long, dark green.
Cones:	Pollen cones (male) small, produced in terminal clusters; seed cones large, cylinderical 3 - 8 inches long yellowish-brown, with scales greatly thickened at the tip; seeds nut-like, practically wingless.
Distribution:	A characteristic alpine tree on high mountain slopes where it is usually much stunted and frequently deformed by the strong winds.



JACK PINE

(Pinus banksiana)

Ranging in height from a small scrubby tree up to about 60 feet depending upon growing conditions; bark thin, reddish grey on young trees becoming darker grey and rough scaly on old trunks.

Leaves: Needle-like, stiff, sharp-pointed, in bundles of two, frequently twisted, ¾ - 1½ inches long, yellowish-green.

Cones: Pollen cones (male) small in close clusters at the ends of young branches; seed cones (female) borne in pairs, usually curved and pointing towards the end of the branches, smooth woody and exceedingly hard, often remaining unopened on the tree for several years, yellowish-grey when mature, 1 - 2 inches long, scales thickened, without prickles; seeds winged.

Distribution: Common on sand hills and thin soil in central and northern Alberta. It can be distinguished from lodgepole pine mainly on difference in form, shape and color of the needles and cone characteristics. It intergrades freely with lodgepole pine in the region where the ranges of these two species overlap.

WHITEBARK PINE

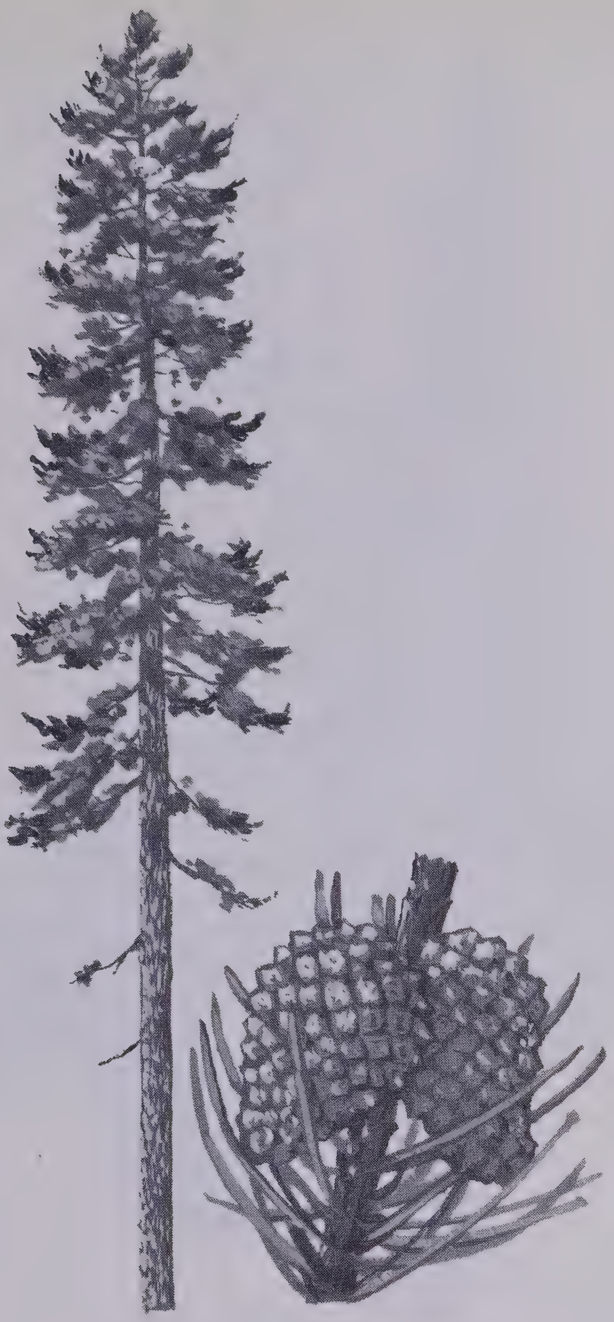
(Pinus albicaulis)

A small alpine tree sometimes of commercial value in sheltered situations, but often reduced to shrub size and frequently prostrate on windswept slopes; trunk massive and distorted with either smooth or scaly whitish bark; branches usually deformed, bunched in the crown or prostrate on the ground.

Leaves: Needle-like in bundles of 5, produced in dense clusters towards the ends of the branches, stiff and somewhat curved, 1½ - 3 inches long, dark yellow green.

Cones: Pollen cones (male) borne in small terminal clusters; seed cones (female) stout, tough, oval-shaped and purplish, 1½ - 3 inches long, scales much thickened, sharp-pointed, woody, resinous, permanently closed.

Distribution: A rare mountain species found scattered along the timber line of the Rocky Mountains, on exposed ridges in association with Engelmann spruce, limber pine and lodgepole pine. It is distinguished from limber pine by its chalky-white bark, stout purplish cones that may remain closed for several years.

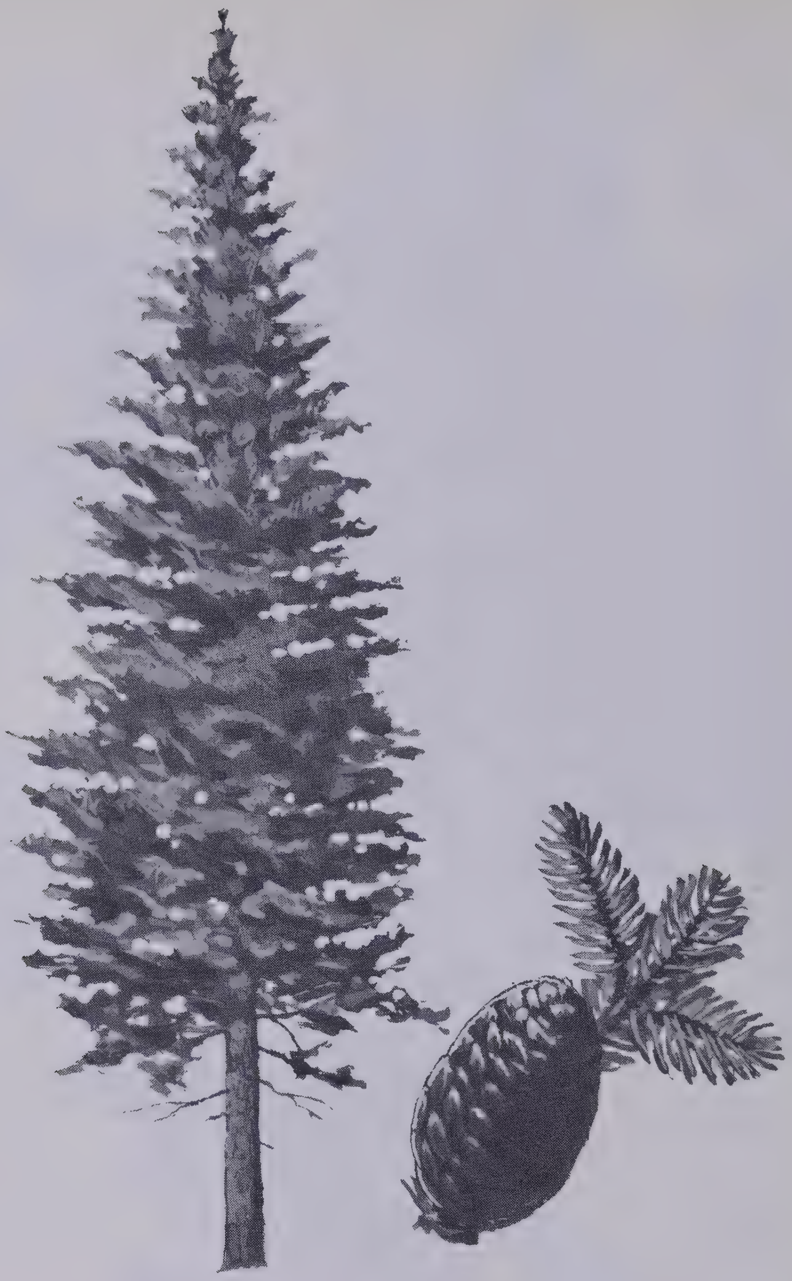


LODGEPOLE PINE

(Pinus contorta var. latifolia)

Up to 80 feet or more in height; bark thin, yellowish-brown, somewhat scaly.

Leaves:	Needle-like, in bundles of two, produced in dense clusters towards the ends of the branches, 1 - 3 inches long, yellowish-green.
Cones:	Pollen cones (male) borne in small terminal clusters; seed cones (female) conical-shaped and woody, usually curved backwards towards the base of the branches, yellowish-brown, often borne in clusters, 1 - 2 inches long, scales thickened and with a sharp spine at the tip of each scale; seeds winged.
Distribution:	The most common and abundant tree in the Rocky Mountains and foothill regions. Occurring on the eastern slopes of the Rocky Mountains where it frequently forms dense even-aged stands as the result of fire. In areas adjacent to jack pine, the two species intergrade.



BALSAM FIR

(Abies balsamea)

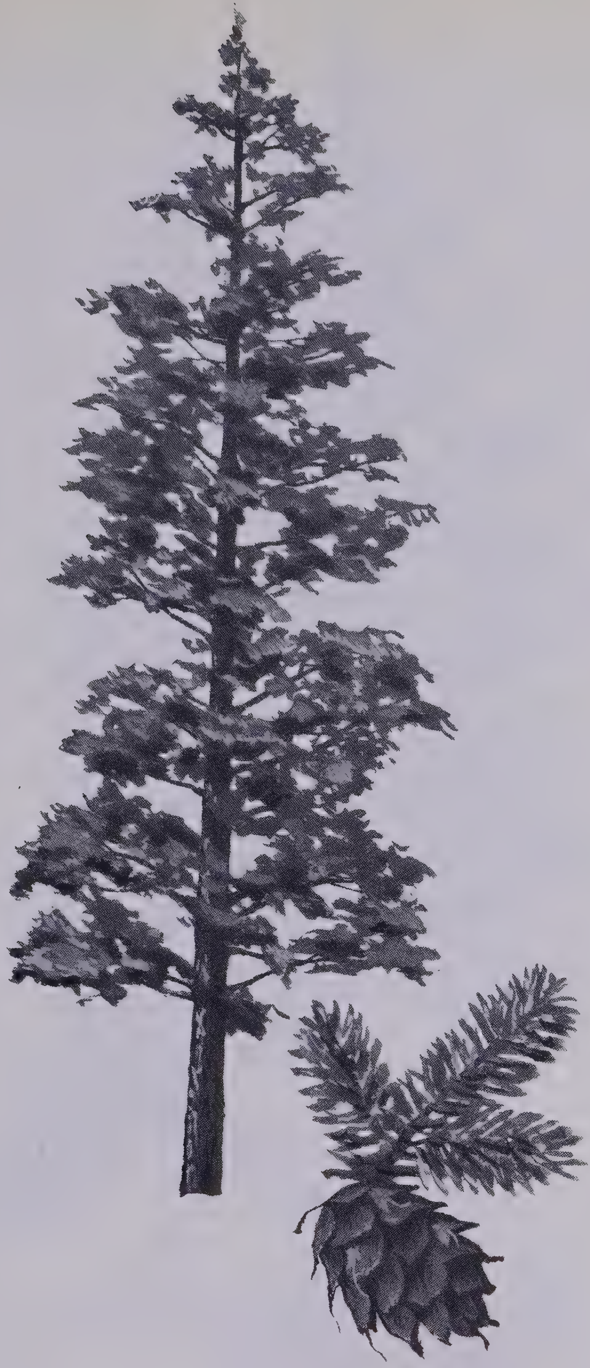
Usually 50 - 70 feet in height, with the branches extending nearly to the ground; bark smooth, pale grey with large resin blisters on young trees becoming roughened and reddish brown on mature trees.

Leaves: Needle-like, distinctly flattened, rounded at the tip, arranged in two ranks, ¾ - 1¼ inches long, dark green above, whitish beneath.

Cones: Pollen cones (male) small, yellowish-red; seed cones (female) large, erect, dark purple, 2 - 4 inches long, scales slightly elongated with short pointed bracts, becoming soft when mature.

Distribution: Northeastern Alberta.

Notes: A mountain species, alpine fir (*A. lasiocarpa*) occurs commonly in sub-alpine forests mixed in with white spruce and poplar. It is distinguishable from balsam fir mainly by slight differences in the cones.

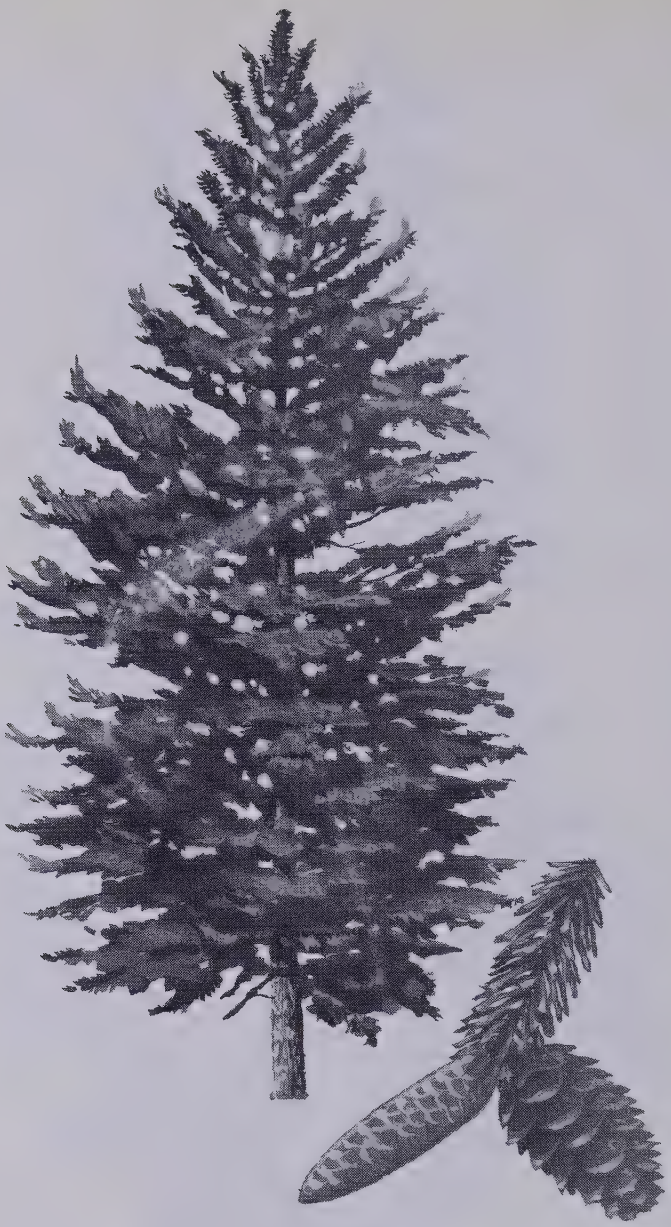


ROCKY MOUNTAIN DOUGLAS FIR

(Pseudotsuga menziesii)
(until recently — P. taxifolia)

A large tree up to 80 feet high with a massive trunk and somewhat drooping branches; bark on young trees smooth and reddish brown becoming 4 - 6 inches thick and deeply fissured on old trees.

Leaves:	Needle-like, somewhat flattened, tapering at the base to a very short stalk, ¾ - 1¼ inches long, bright blue green above, pale beneath.
Cones:	Pollen cones (male) bright red; seed cones (female) drooping, reddish brown, 2 - 3½ inches long, the 3-forked bracts projecting beyond the broad-rounded, stiff scales; seeds broadly winged.
Distribution:	Along the east slope of the Rocky Mountains extending southwards from Jasper Park to Waterton, rarely found in pure stands.



WHITE SPRUCE

(Picea glauca)

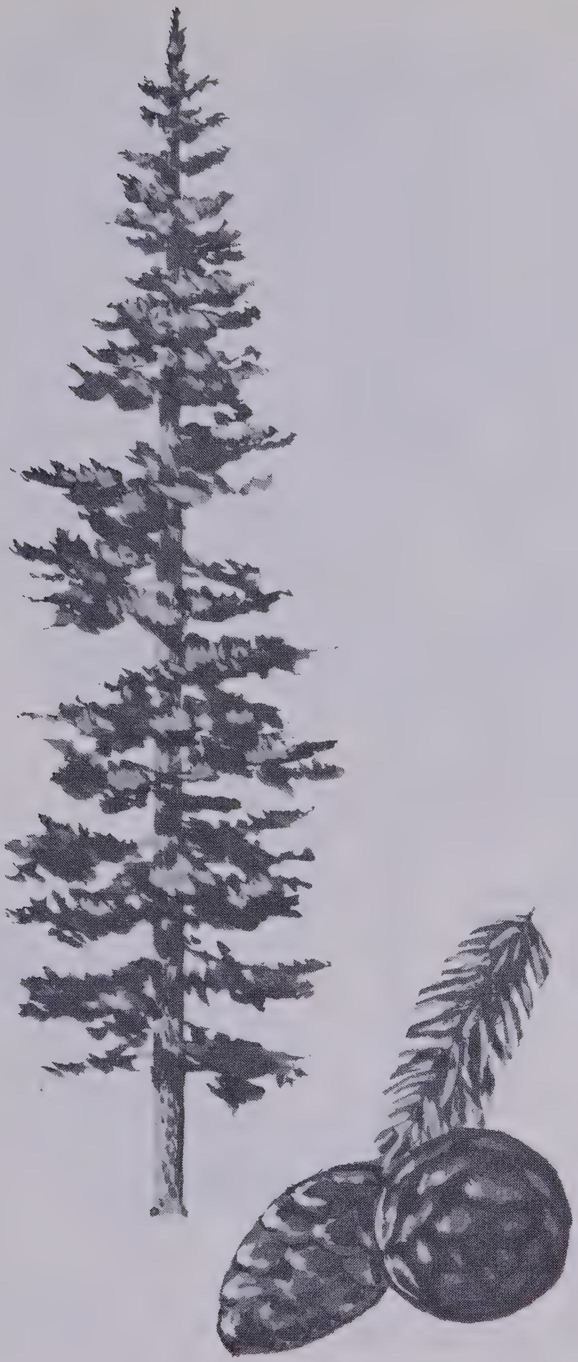
A large tree reaching up to 120 feet; rough scaly bark, brownish to silvery grey.

Leaves: Needle-like, 4-sides, stiff, sharp-pointed, 1 - 1¼ inches long, bright green.

Cones: Pollen cones (male) small, yellow; seed cones (female) usually at the ends of young twigs, drooping and turning brown at maturity, 1½ - 2 inches long, scales thin, somewhat rounded with smooth margins; seeds with thin wings.

Distribution: Widespread throughout south-central and northern Alberta, succeeding poplar and pine in burned over areas.

Notes: A variety, western white spruce (*P. glauca var. albertina*), occurs in the Rocky Mountains and is distinguished from the ordinary white spruce by its somewhat shorter cones. The mountain species, Engelmann spruce (*P. engelmanni*) occurs at higher altitudes in high valleys and on mountain slopes. This species resembles western white spruce very closely with only minor differences between the cones.



BLACK SPRUCE

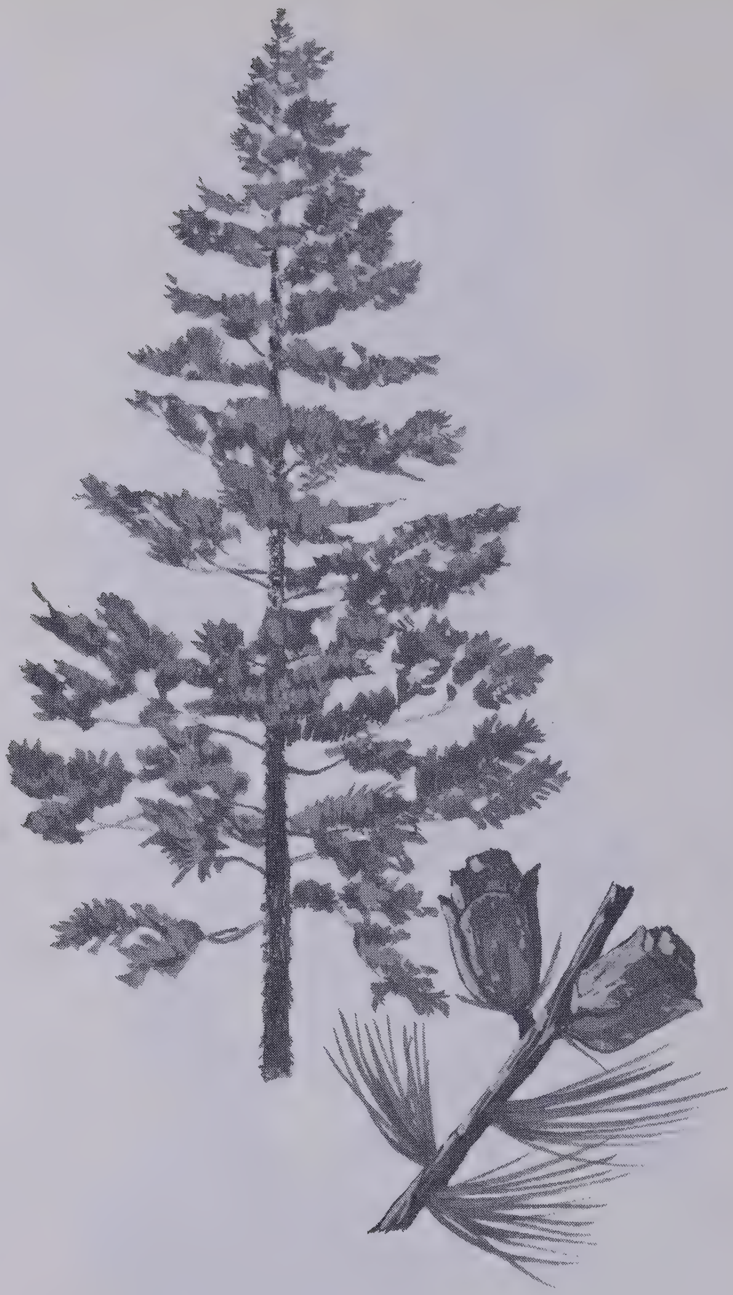
(Picea mariana)

Usually a small, slow growing tree, 30 - 50 feet high, with thin scaly greyish bark, inner bark usually olive-green, the lower branches usually festooned with "old-man's beard" lichen.

Leaves: Needle-like, short, thick, 4-sided, ½ - ¾ inches long, blue-green.

Cones: Pollen cones (male) small, dark red; seed cones (female) purplish-green, ½ - 1½ inches long at maturity, brown to purplish green and almost spherical, remaining on the tree for several years, scales stiff and rounded; seeds small, winged.

Distribution: The most common tree in muskegs throughout northern and central Alberta.



TAMARACK-LARCH

(Larix laricina)

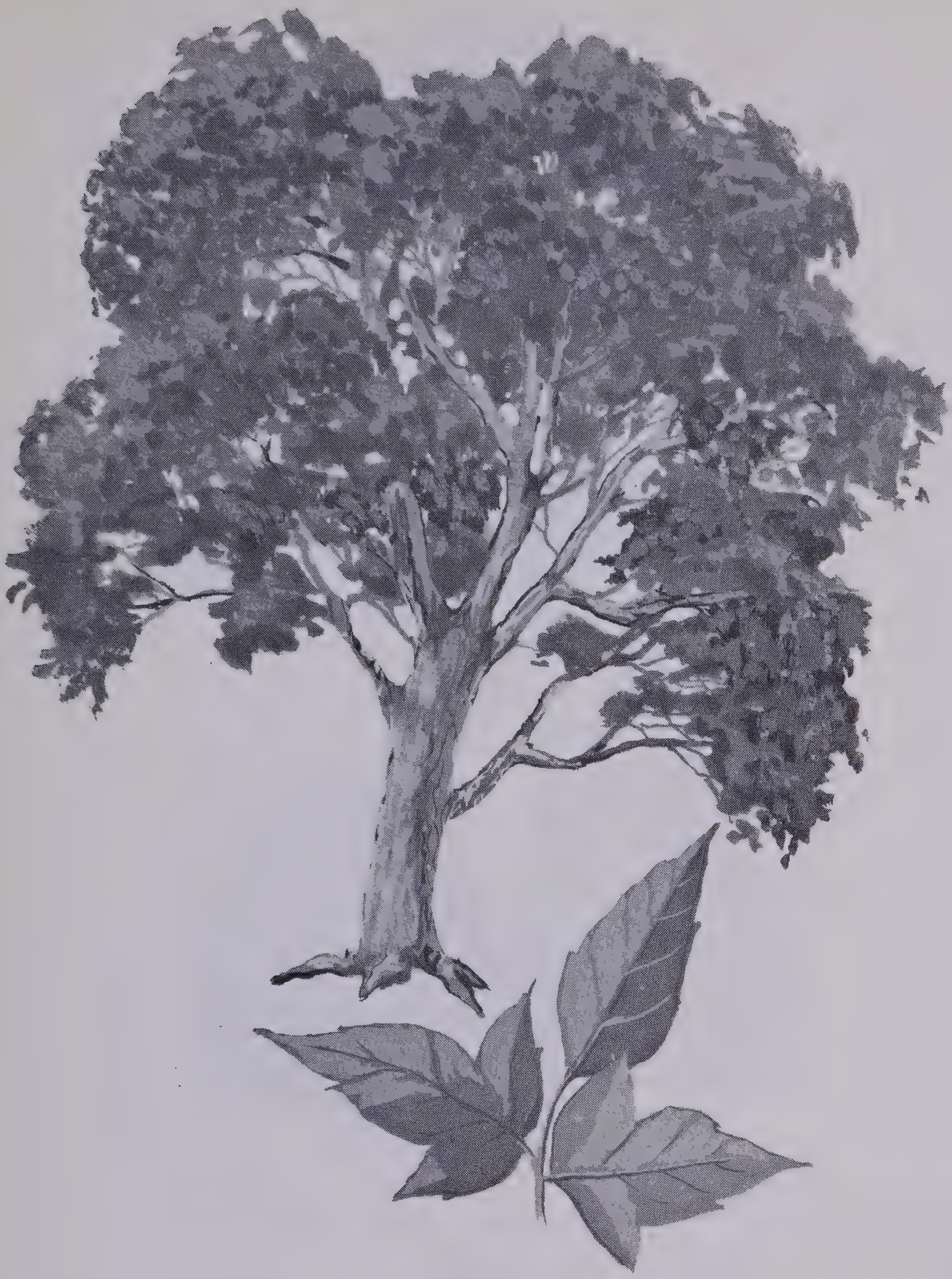
Up to 60 feet high with slender slightly ascending branches; rough dark grey bark and numerous small rounded reddish winter buds.

Leaves: Needle-like, 12 - 20 in feather-like clusters, soft and slender, ¾ - 1½ inches long, light green turning bright yellow in the autumn when they fall from the tree.

Cones: Pollen cones (male) quite small, yellow; seed cones (female) reddish when young, becoming brown and almost spherical when mature; seeds small and winged.

Distribution: Common in muskegs in central and northern Alberta.

Notes: A smaller, more gnarled and twisted species alpine larch (*L. Lyallii*) with many fine feathery needles occurs near timberline in the Rocky Mountains.

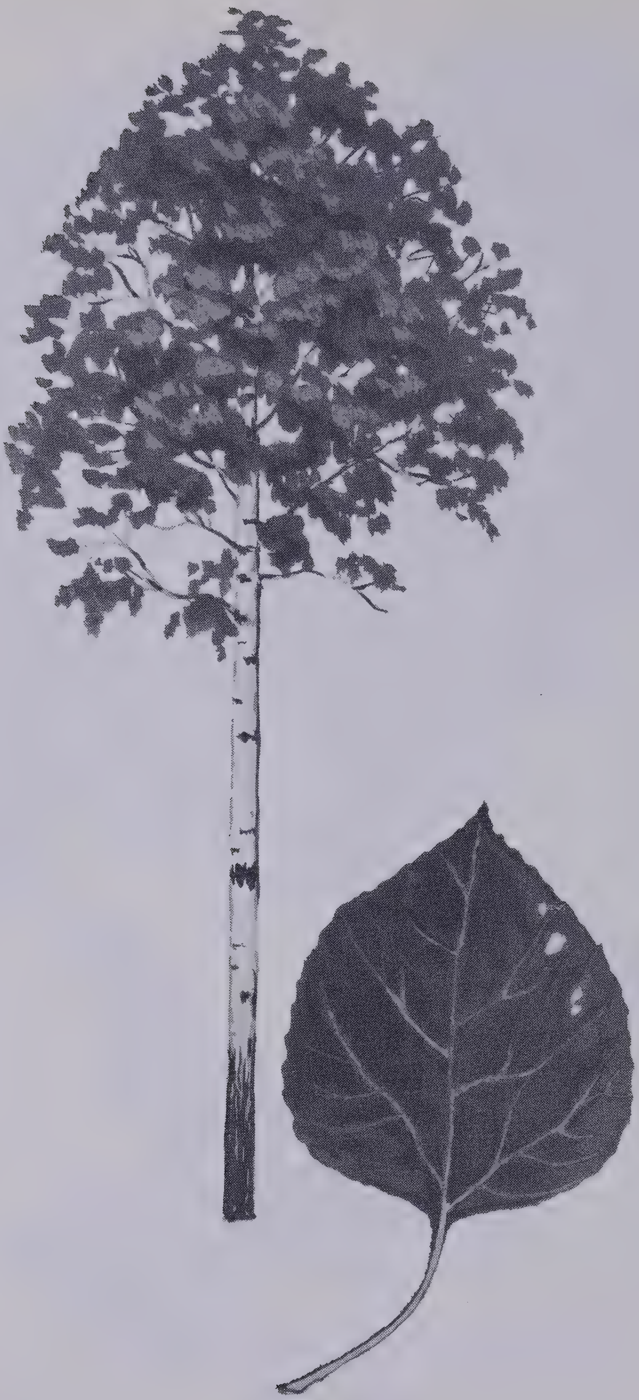


MANITOBA MAPLE - BOX ELDER

(Acer negundo var. interius)

Up to 30 feet in height, with several widely spreading branches; light grey deeply furrowed bark; winter buds covered with a fine grey down.

Leaves:	Opposite, compound, 6 - 15 inches long, 3 - 5 coarse-toothed, often lobed leaflets, light green above and somewhat paler beneath.
Flowers:	Small, produced in yellow-green clusters, male and female flowers on different trees, appearing before the leaf buds open.
Fruit:	A pair of broadly-winged, one seeded fruits.
Distribution:	A species native only to southeastern Alberta but extensively planted throughout central Alberta in cities, roadsides and as windbreaks.



ASPEN POPLAR

(Populus tremuloides)

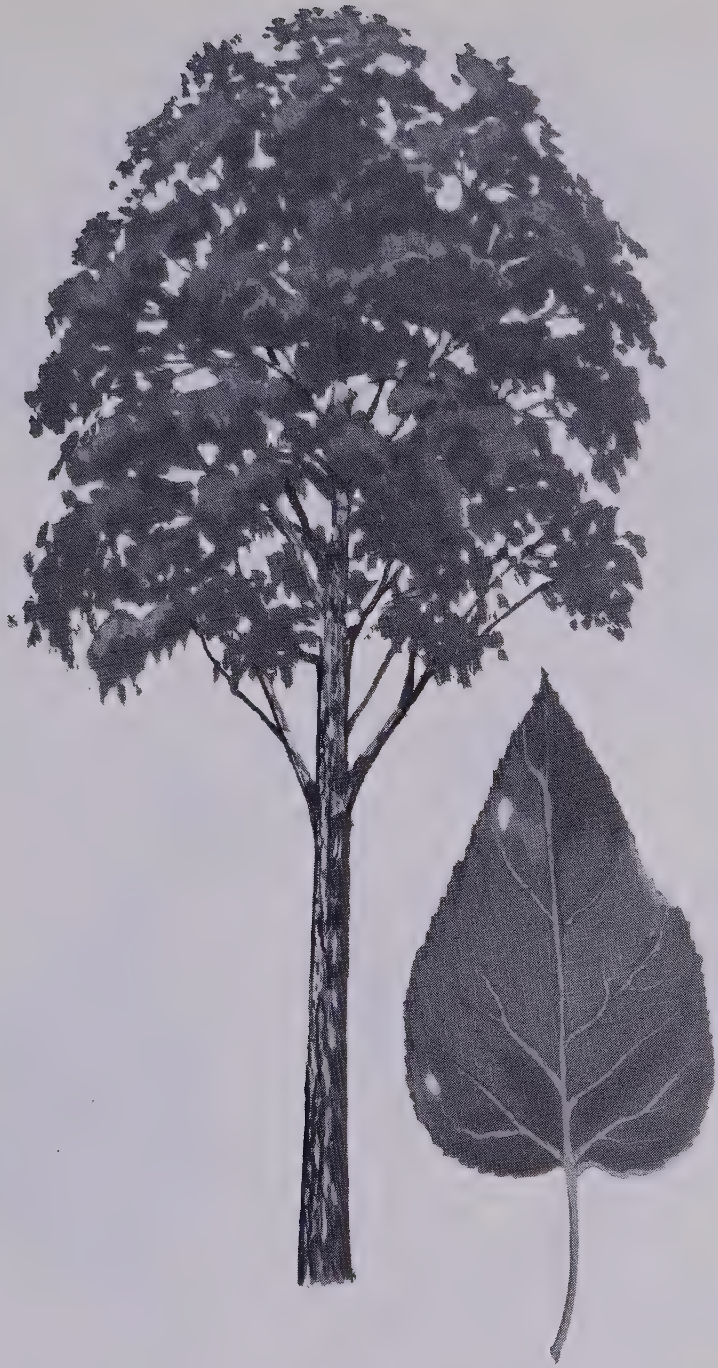
Up to 90 feet in height, bark at first smooth, greenish-white, becoming rough and dark grey with age, terminal bud sharp pointed, all buds dark brown.

Leaves: Alternate, simple, broadly oval, sharp-pointed, fine-rounded teeth, 1½ - 3 inches long, borne on long, slender stalks, dark green above, pale below; petioles flattened causing fluttering in wind.

Flowers: Inconspicuous, small in dense catkins, pistillate and staminate flowers on different trees, formed before leaves develop in the spring.

Fruit: A greenish capsule, containing many small hairy seeds.

Distribution: Common and widespread throughout Alberta.



BALSAM POPLAR

(Populus balsamifera)

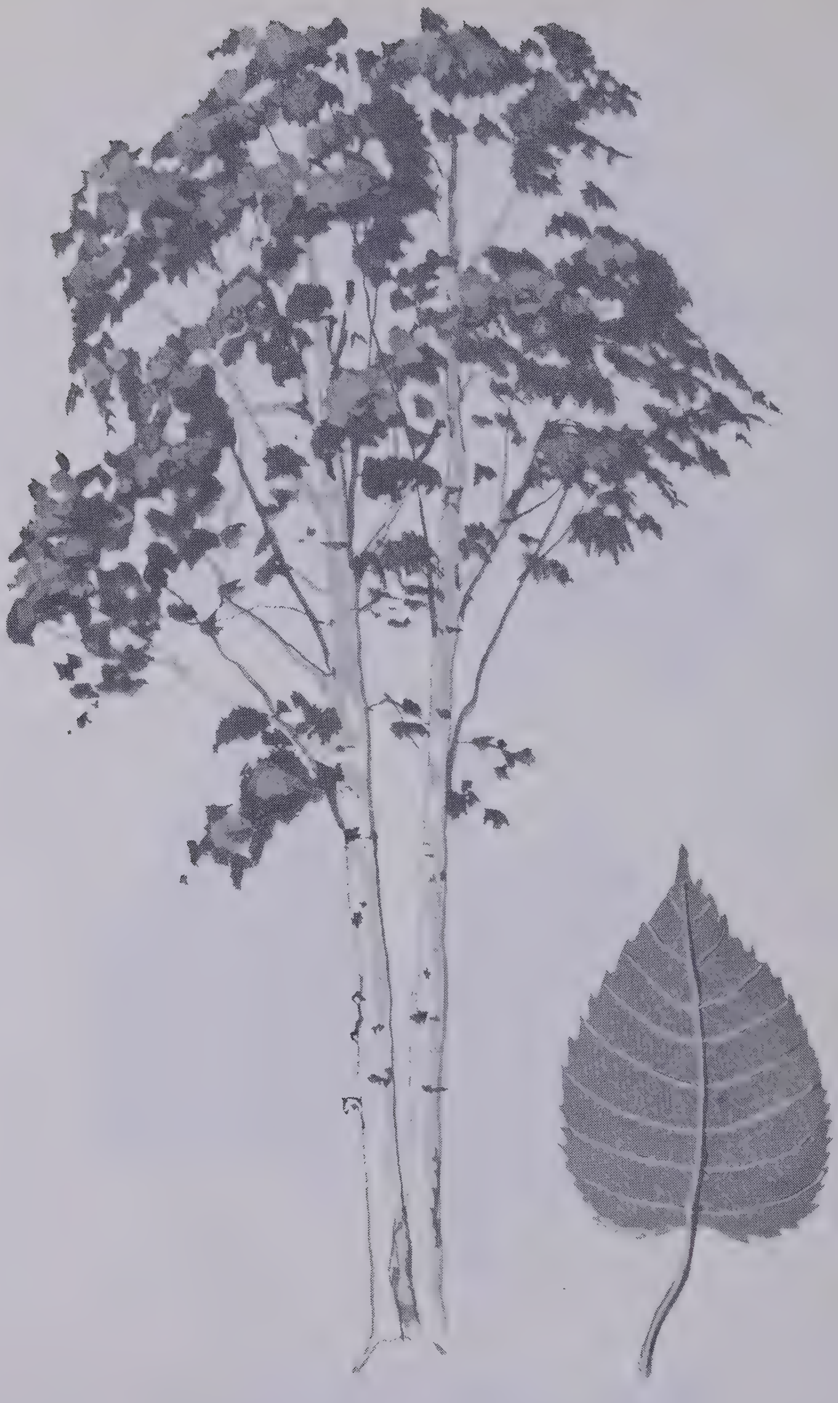
Up to 70 feet high with stout spreading branches; dark grey, rough deeply furrowed bark; winter buds large and curved with a sticky balsam-smelling gum.

Leaves: Alternate, simple, oval or heart-shaped, sharp-pointed, rounded teeth, 3 - 6 inches long, shiny dark green above and pale green beneath.

Flowers: Inconspicuous, small in dense catkins, pistillate and staminate flowers on different trees. Developed before the leaves expand in the spring.

Fruit: A dry, greenish-brown capsule, opening when mature. The seeds, very small, numerous and hairy.

Distribution: Common in forestland, abandoned farmland, burned-over areas, river banks throughout Alberta.

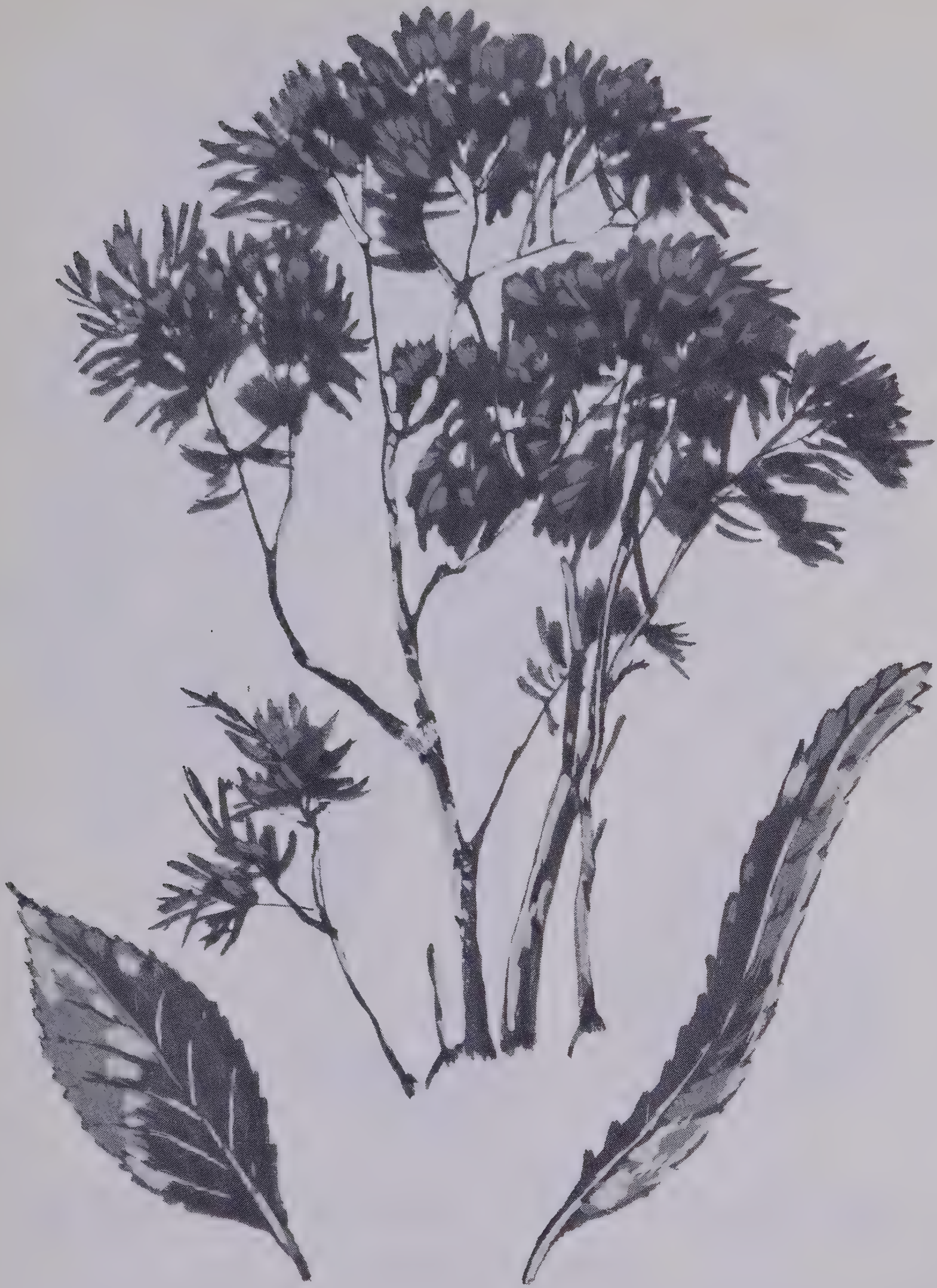


WHITE, PAPER OR CANOE BIRCH

(Betula papyrifera)

Twenty to sixty feet in height, with whitish or silvery grey bark, peeling off in thin sheets; winter buds chestnut brown, bud scales slightly downy, no distinct terminal bud.

Leaves:	Alternate, simple, in slender stalks, oval and tapering to a point, irregularly toothed, ½ - 3 inches long, dark green above, paler and slightly hairy beneath.
Flowers:	Inconspicuous small, in staminate and pistillate catkins.
Fruit:	A small, broadly-winged nutlet.
Distribution:	This species and several varieties are widespread and common along river banks and moist wooded areas throughout Alberta.

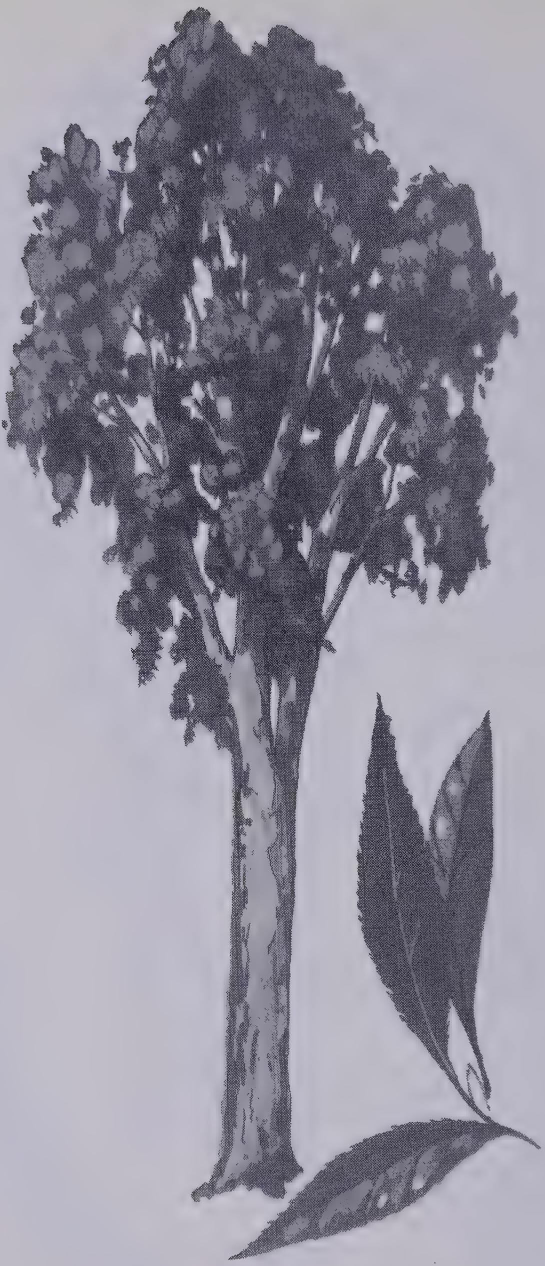


SILVER-BERRY ★ WOLF WILLOW

(Elaeagnus commutata)

Two to twelve feet high with brownish scuffy twigs; winter buds with silvery, scuffy bud scales.

Leaves:	Alternate, simple, oblong, 1 - 4 inches long, silvery on both sides with brownish scales beneath.
Flowers:	Silver yellow, borne in clusters of 2 - 3, sweet smelling.
Fruit:	Oval, silvery, dry and mealy, containing a single large stony seed.
Distribution:	Common and very abundant on higher soils, stony river bottoms, valley slopes and dry hillsides throughout Alberta.



NARROWLEAF COTTONWOOD

(Populus angustifolia)

Up to 40 feet high, usually slender with upright branches; smooth, yellow-green bark, somewhat roughened on old trunks; winter buds large, slender, taper-pointed with a resinous covering.

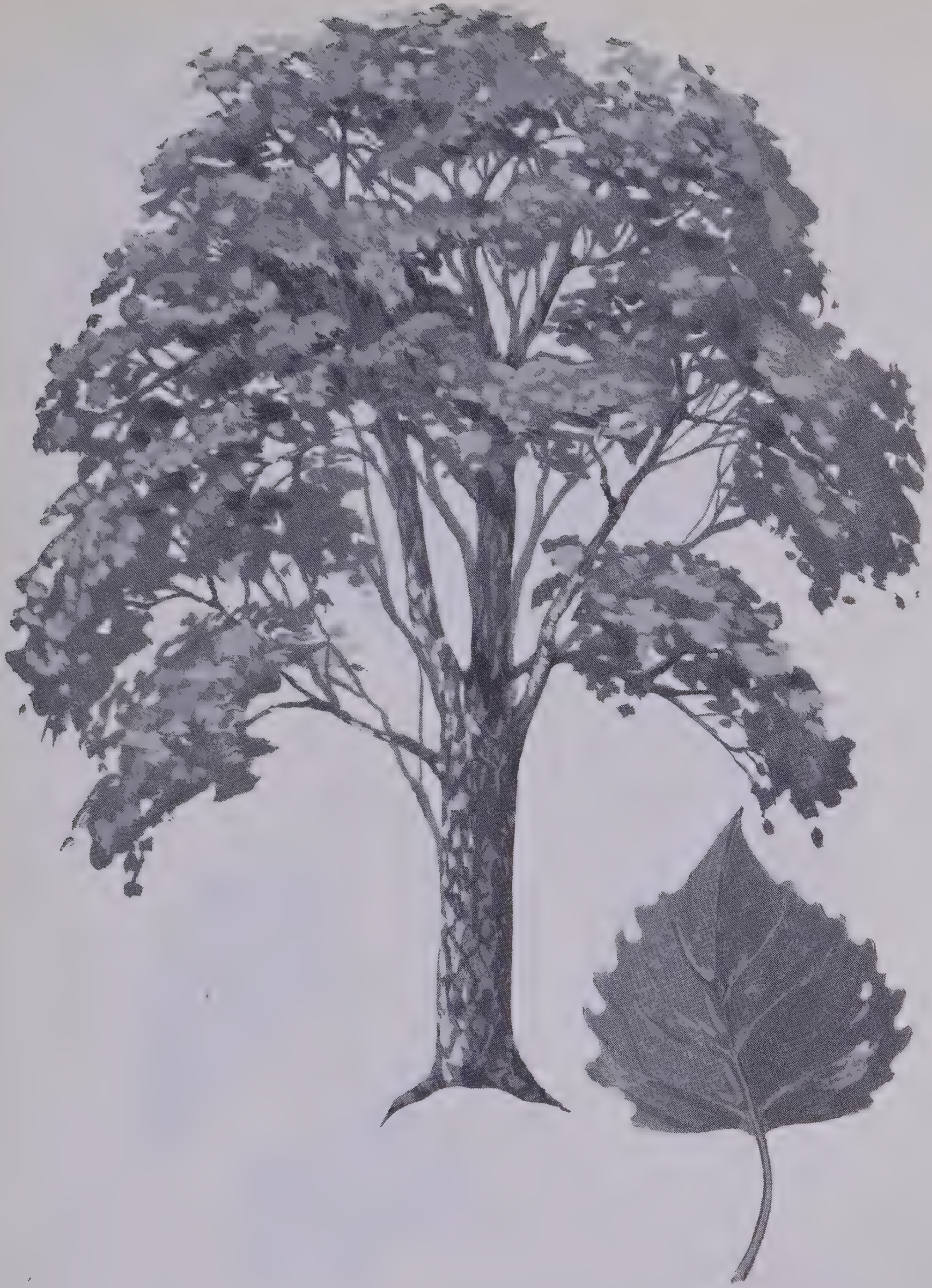
Leaves: Alternate, simple, lance-shaped, sharp-pointed, fine-toothed, 2 - 4 inches long on short stalks, bright yellow-green above and pale green beneath.

Flowers: Inconspicuous, in dense catkins, pistillate and staminate flowers on different trees. Developed before the leaves expand in the spring.

Fruit: A dry greenish-grey capsule, arranged in catkins, opening at maturity to expose numerous, small tufted seeds.

Distribution: Common in stream valleys and river flats in southern Alberta.

Notes: A somewhat similar species, lanceleaf cottonwood (*P. acuminata*), occurs in the same locality but bears broader and more coarsely toothed leaves.



PLAINS COTTONWOOD

(Populus sargentii)

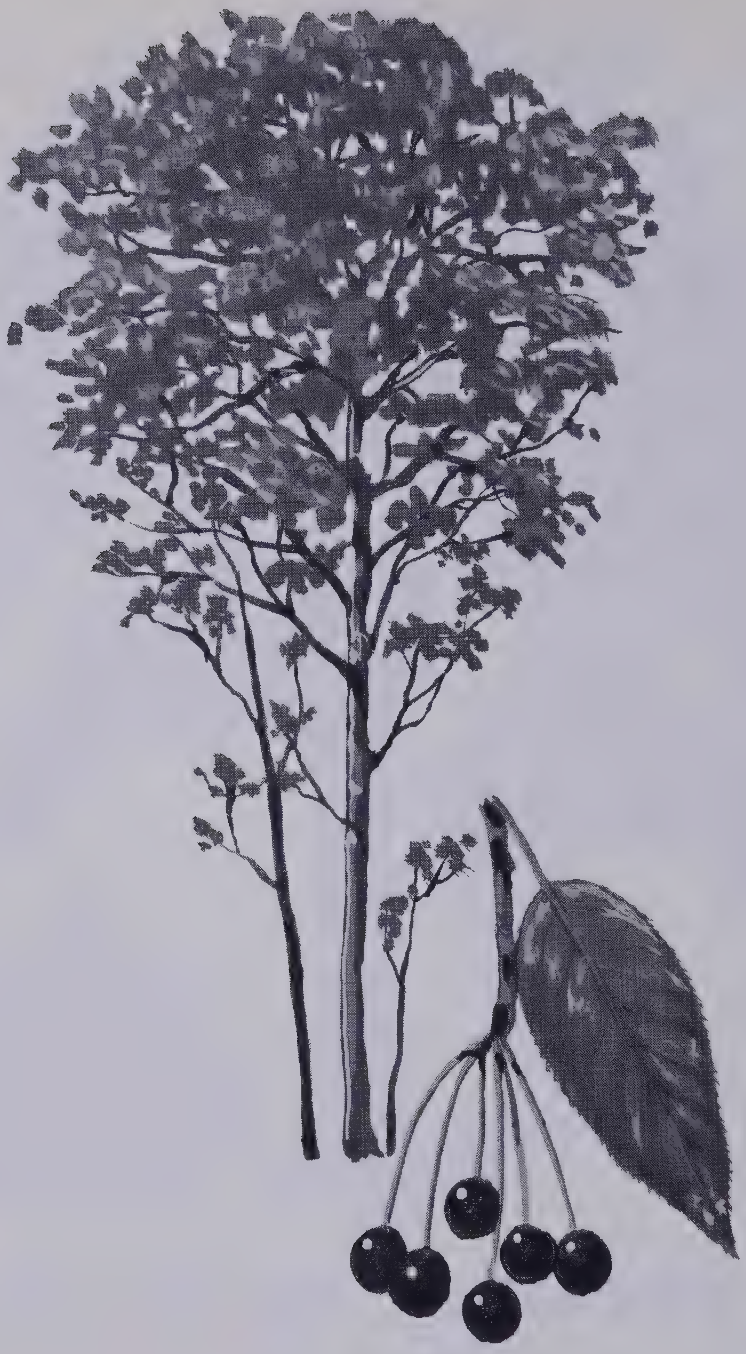
Up to 90 feet high, with a straight massive trunk and stout, widespreading branches; bark deeply furrowed; winter buds large, greenish-brown, hairy and resinous.

Leaves: Alternate, simple, broadly triangular, with widely-spaced rounded teeth, 3 - 4 inches long, light green, shiny and smooth above, paler beneath.

Flowers: Inconspicuous, borne in dense catkins before the leaves develop in the spring; pistillate and staminate flowers on different trees.

Fruit: A dry, greenish capsule, opening when mature to expose numerous small tufted seeds.

Distribution: Common along river banks and sandy river flats. Southern Alberta.



PIN CHERRY

(Prunus pensylvanica)

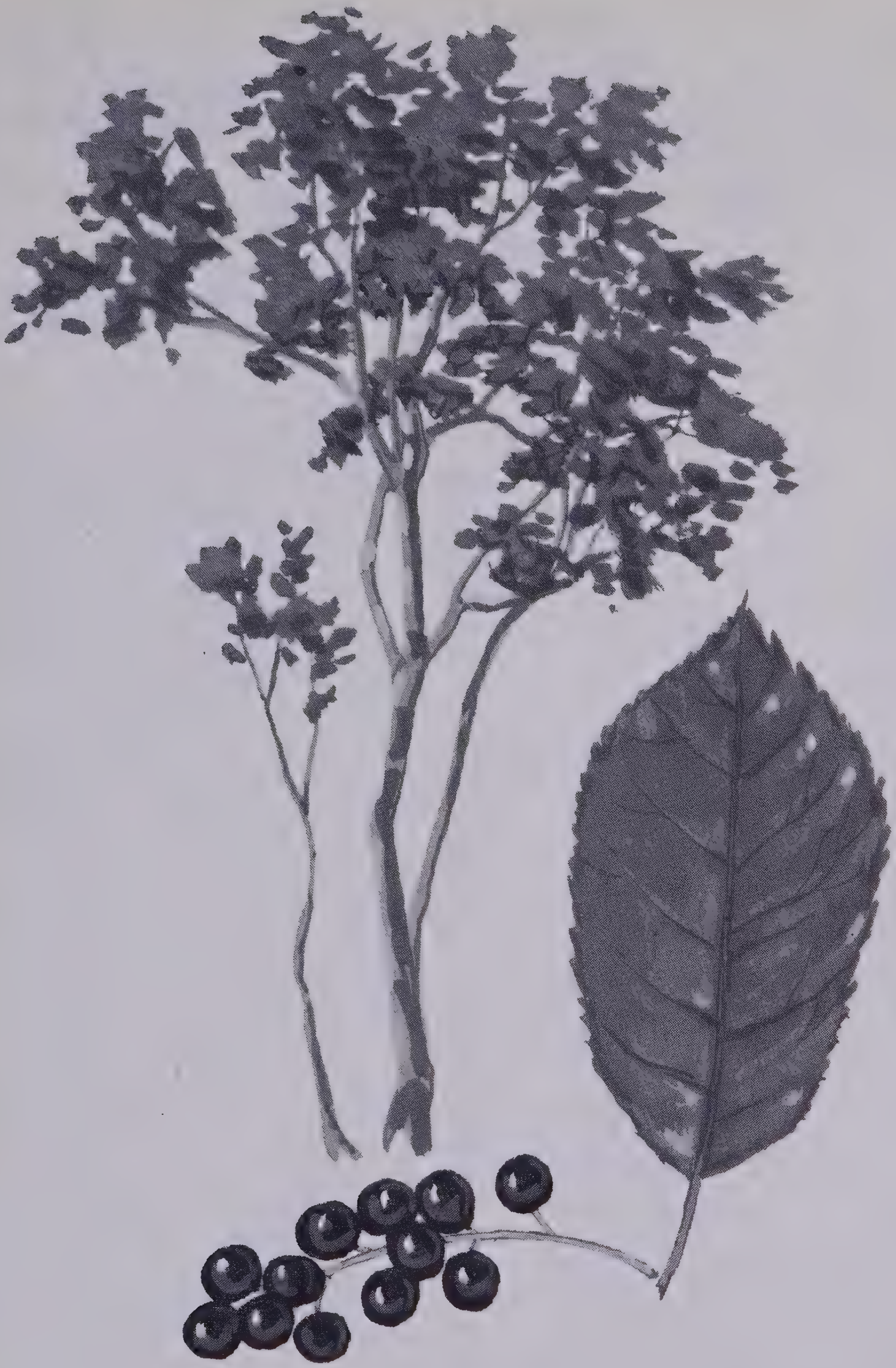
Ten to thirty feet high, with smooth reddish-brown bark.

Leaves: Alternate, simple, lance-shaped, sharp-pointed, finely toothed margins, 3 - 7 inches long, smooth and shiny dark green above, paler beneath.

Flowers: White, small, in long stemmed clusters, opening in early spring with the developing leaves.

Fruit: A small, round, bright red cherry, edible but sour, used for making jelly and preserves.

Distribution: Commonly found in thickets bordering dry woods on bluffs and sandy hillsides throughout Alberta.



CHOKE CHERRY

(Prunus virginiana var. melanocarpa)

Six to twenty-five feet high, several spreading branches with smooth dark, smokey grey bark.

Leaves:	Alternate, simple, oval-shaped, 1 - 3 inches long, fairly thick and tough, smooth on both sides.
Flowers:	White, small, in dense cylindrical spikes.
Fruit:	A small purple or black cherry, edible but extremely sour and bitter.
Distribution:	Very common in thickets along river banks, roadsides and on bluffs and sandhills throughout Alberta.

Over The Rockies To The Orient

A 300 YEAR SEARCH FOR THE NORTHWEST PASSAGE

By W. T. GALLIVER
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What schoolboy has not marvelled and envied the swashbuckling episodes — the successes — failures — tragedies and triumphs — hardships and deeds associated with the romance of the early exploration of our great land. Such names as Columbus, LaSalle, Marquette, Joliet and of course the LaVerendryes are familiar to all Canadians with LaVerendrye, perhaps the explorer of early Canada who with his sons played the largest part in opening up the prairies as far as the Rockies, and was so instrumental in the establishment of the early forts of the Saskatchewan River system.

Because of the rich trade in spices and silks in the Orient, Columbus was induced to set out across the Atlantic in search of a short route to China. During his search for this westward passage, Columbus discovered America — which was an obstacle in his way westward. Considerable time was spent by Columbus and others in the early exploration and mapping of the eastern shoreline of the continent — during which time, attempts were still being made to find a passage by water through the continent to the Orient.

In 1610 Henry Hudson determined that the Hudson River was not the passage which he sought. However, further explorations led to his discovery of Hudson Bay and subsequently brought about further penetrations into this area by the Hudson's Bay Company — who sent out various expeditions in search of a passage leading westward. Although the Hudson's Bay Company was also looking for the passage north to the Orient, the French in Canada were determined to discover their own Northwest Passage in the form of an inland waterway through the continent to the Pacific.

The great French explorer, LaVerendrye, from one of his posts on Lake of the Woods had heard confusing tales from the Indians about the "Sea of the West" where the waters rose and fell. When he reached Lake Winnipeg he at first mistakingly interpreted the motion of the water to mean tides, but it was actually caused by the strong winds. He did, however, have a fort built on Lake Winnipeg in February 1737 known as Fort Maurepas.

From this base on Lake Winnipeg LaVerendrye worked his way across the prairies to Fort la Reine which was established at Portage La Prairie. This was the beginning of the portage from Assiniboine River to Lake Manitoba and was the connecting link with the unknown North-West. On the basis of misinformation regarding the "River of the West" lying in the direction southwest across the prairies, he continued his efforts in that direction — and in 1739 made a long expedition into what is now the Dakotas. His sons continued even further west and in 1742 were the first white men to see the Rockies that far north.

By 1741 Pierre LaVerendrye, in his course of exploration, established posts on the Saskatchewan and built two forts — at Fort Dauphic and Fort Bourbon. The latter fort was erected on Cedar Lake — where the Saskatchewan River passes through it.

The River of the West had at last actually been seen by white men, who later built posts on it. Most of these white men were French with the exception of an Englishman, Henry Kelsey, who had been sent out from Hudson Bay in 1690. The French were the first to establish a post on the river that later was to become the Northwest Passage, and in doing so went as far west as Fort a la Corne in Saskatchewan. These French explorers were told by the Indians that the Saskatchewan rose in the shining mountains from where it was believed that it would be but a very short trip to the sea.

La Verendrye died in 1749 and as there were now very few explorers — only fur traders and political appointees — the search by the French for the western sea was inaffectual. The Seven Years War fully occupied the attention of the French, many of whom left the Saskatchewan country to go to war. All French activity in the west ceased upon Canada being ceded to Britain and further exploration in the search for the passage to the East was left to the enterprising private traders of the Northwest Company and the Hudson's Bay Company.

Two of these enterprising traders were Henry Kelsey of the Hudson's Bay Company, who made his great journey of 1690 and was the first white man to see the mighty Saskatchewan; and Anthony Henday, who in 1754 ascended the watershed of the mighty Saskatchewan to Rocky Mountain House, Alberta. Both of these men had made their trips with the idea of exploration, but not with the primary idea of discovering the Northwest Passage. The Hudson's Bay Company, however, had fitted out many expeditions to find the passage north out of Hudson Bay to the west and on to the Orient. With a view to discovering definite information on a passage, Samuel Hearne was sent north and west in 1771. His famous journey took him north to Great Slave Lake and, finally, to the Arctic Ocean via the Coppermine River. His trip, although establishing the fact that there was no sea passage north of the Arctic Ocean, did not discourage the dream of finding a navigable route by rivers and lakes to the west coast.

With the idea of possibly discovering such a route, combined with the mercenary reference of the fur trade, a glorious chapter in the annals of exploration began in the west which opened

ANTHONY HENDAY — the first European to see the Northern Rockies.

up this portion of the continent in the period of 35 years following 1774. In that period the Saskatchewan, Peace, Mackenzie, Fraser and Columbia Rivers were explored and mapped by some of the greatest geographers of all times. Behind all of this exploration, however, lay the age-old idea of finding the elusive Northwest Passage.

The first steps were taken by the Hudson's Bay Company in the opening of the trading posts on the great Saskatchewan. The intrepid explorer, Samuel Hearne, in 1774, took as his first base of operations a post on Cumberland Lake, which later became known as Cumberland House. This site was selected because it was the cross roads of the great water highways of the Saskatchewan and the north. From this point one can travel up large streams and across lakes to the Churchill River, and by short portages and streams to the Athabasca — which leads to a clear passageway to the Mackenzie and Arctic Ocean. By going west, the mighty Saskatchewan flowed through the deep valley it had carved for itself across the prairies to the mountains.

The Northwest Company, arch rivals of the Hudson's Bay Company, protected their interests in the lucrative fur trade by establishment of posts further up the Saskatchewan and north to Cumberland

House, to cut it off from the Indians of the west and from Churchill River. This rivalry started a long game of leap-frogging past each other's posts — which led finally to the exploration of the entire northwest.

At this time a little known explorer — Peter Pond, a Yankee free-trader who later became associated with the Northwest Company, pushed farther up the Saskatchewan than any other trader. In the fall of 1776 he had built and established a post 4 miles west of Prince Albert, Saskatchewan. In 1778 Peter Pond headed down the Clearwater River to Fort McMurray, where he established the first post on the Athabasca. It is believed that at this period he also saw the lower waters of the Peace River. Peter Pond made a tremendous contribution to the exploration of the west and, in particular, to the rivers on which he travelled, and his famous map was made up from the knowledge he had gained on his own explorations and partly from the information he had obtained from the Indians.

Interest in this Northwest Passage was revived at this time in England as more was becoming known of the geography of that area of the continent west of the Great Lakes. At long last the man was at hand who was to complete the last link in the first crossing of the continent. This man was Alexander Mackenzie.

Mackenzie proceeded west from his advanced base at Fort Chipewyan and pressed on in the face of opposition from the Indians, mutiny of his crew and the many obstacles encountered in the roaring rivers.

In 1789 he started on the way that was to lead down the great river to the sea. However, Alexander Mackenzie reached the tide water only to suffer a dashing of his hopes. This great waterway on which he travelled he called the River of Disappointment, because it led not to the Pacific — but to the Arctic Ocean. The world, however, acclaimed his exploits, and the longest river in Canada was named after its first explorer.

However, Mackenzie reasoned that if the Mackenzie River did not lead to the Pacific — then he should be able to reach his goal by ascending the Peace to its head waters and descend by various streams to the great divide.

On May of 1793 he commenced his second voyage from a point near the present town of Peace River and after severe hardships he reached the Pacific in July of that year. At last the Northwest Passage had been accomplished — but this waterway was not a practical one for mass transportation. It yet remained to trace the Saskatchewan to its source and secure such a waterway.

It was at this time that the trading forts were being established along the Saskatchewan River at Prince Albert, Buckingham House, Fort George, Fort de l'Isle, Fort Augustus (site of the present city of Edmonton) and Rocky Mountain House (see the article on Provincial Parks Historical Sites — 1968 Summer issue).

In the Fall of 1810, David Thompson, in order to by-pass an alert hostile tribe of Piegan Indians, was forced to cut an overland trail from the Saskatchewan below Rocky Mountain House to the Athabasca — where he ascended it to Jasper. From here he proceeded by the Whirlpool over the summit to the Wood and Canoe Rivers reaching the Columbia at Boat Encampment in the winter of 1811. This is near where the most northerly point of the Big Bend Highway crosses the Columbia River. Thus was established the last link in the Northwest Passage. This famous waterway now starting at Hudson Bay proceeded up the Nelson River to Lake Winnipeg where it was joined by the alternative route via the St. Lawrence and the Great Lakes. From Lake Winnipeg its route lay along the mighty Saskatchewan to its headwaters, across to the Athabasca then over the divide later known as the Athabasca Pass and finally down the Columbia to the Pacific.

The Northwest Company used the alternative route from Cumberland House to Churchill River up the Churchill to the Beaver — that winds its

The intense rivalry between the Hudson's Bay Company and the Northwest Company finally led to the exploration of the entire Northwest.

tortuous way into Alberta south of Cold Lake, continues past Bonnyville and north of St. Paul to Lac La Biche. From there the voyageurs passed over to the Athabasca below the modern town of that name, and then up the Athabasca to Jasper. Commencing in 1824, Sir George Simpson, Governor of the Hudson's Bay Company, saw the great advantages in this alternative route over the other waterways and decreed that from that date it would be used by the Company.

In the winter of 1824/25 Dr. John McLoughlin built a fort at Vancouver across the river from Portland, Oregon which became the headquarters for the Hudson's Bay Company trade on the west coast. Under its jurisdiction were placed various posts of the Hudson's Bay Company, scattered from modern Los Angeles to Alaska, and even those situated across the Pacific in Hawaii, variously known as Honolulu, Sandwich Islands and Woahoo.

And so it went — buying, trading and shipping and all the while reporting by means of courier travelling down the Saskatchewan to York Factory and thence to London. Instructions from London were sent over the Atlantic to Norway House and post haste to Lake Winnipeg. On and on sped the Voyageurs, stopping to refresh themselves at Cumberland House, riding across the short cut from Carlton to Fort Pitt and thence on to Edmonton, the largest and gayest depot in the West. From Edmonton there was a two-day trip by pack train to Fort Assiniboine and then on to Jasper — where they would pause a day or so to rest before buckling down to the arduous trip over the divide to Boat Encampment. From this place the trip consisted of merely floating down the broad, though sometimes treacherous, Columbia to the Pacific.

George Simpson of the Hudson's Bay Company made the trip from York Fac-

tory to Fort George on the Washington Coast — starting August 15, 1824 — via the Churchill and Beaver Rivers, reached Fort Assiniboine October 2, thence over the mountains to the coast in 84 days. His return trip followed the course of the Saskatchewan and was even shorter. He left the mouth of the Spokane River where it enters the Columbia on April 13, 1825, reaching Edmonton May 2, then down the Saskatchewan to Fort Carlton, overland to Winnipeg reaching it at midnight May 25 — 42 days elapsed time.

This Northwest Passage played a major part in the opening of the west and was instrumental in the establshment of the Hudson's Bay Company forts along the river system and on the coast from Los Angeles to Alaska, and down the Mackenzie River.

In 1862 the gold miners used the Northwest Passage when the Cariboo gold rush was at its peak. Many of those in the original expeditions to the gold fields later returned to Edmonton to pan for gold in the bars of the Saskatchewan River. These returning gold miners left their names as part of the history of Edmonton in such places as Clover's Bar, later shortened to Clover Bar. Others of the original gold mining expedition later settled near Edmonton, making their homes on the various river flats on the rich black soil deposited during thousands of years by the great North Saskatchewan River.

The actual Northwest Passage was a far cry from the hopes of those who dreamed of a passage from Europe through a large maze of islands which they conceived this continent to be, to China and Japan. However, history has a habit of making men's dreams different than planned but sometimes the reality is infinitely greater than the hope. As in this case more wealth is produced in one year in the valley of the Saskatchewan than all the trade with the Indies in silks and spices brought in a hundred years.

REFERENCE:

Blankets and Beads — a history of the Saskatchewan River by J. G. MacGregor.

WATER POLLUTION

AND FISH IN ALBERTA...

P. PAETKAU

POLLUTION BIOLOGIST, FISH AND WILDLIFE DIVISION

POLLUTION — a magical word. Utter the word and one is immediately bombarded with strong opinions on smoke, dust, obnoxious smells, car cemeteries, dead fish, sewage, oil, economic loss, billboards, those money-hungry industrialists, those unrealistic, pure conservationists, that ineffective government, my neighbor's barnyard, my neighbor's garbage can, etc., etc.

What usually is pollution — how might it be defined? J. R. Brown in the "Pollution Reader" defines it in the following manner:

> *"The definition of pollution is by no means precise but may be understood to include any substance present in the water which renders such water unfit for the purpose for which it was intended. Thus, whether or not a substance is regarded as a pollutant will depend upon the particular use for which this water is required. It is, therefore, very difficult to get any general agreement on this matter."*

With this definition in mind I am left with the duty of outlining substances which may render Alberta's waters unfit for the intended purpose of providing sport and commercial fisheries for its citizens. Whether its citizens would wish to have sport and commercial fishing in Alberta is up to them.

Effluents from industrial plants must be rigorously monitored and controlled to prevent damage to fisheries.

The disposal of domestic sewage into our water courses may render them unfit for the intended purpose of fishing in a number of ways. The obnoxious sight and smell of these rivers is the most obvious one to the average fisherman, but the competition created by the sewage for the available oxygen supply is the most dangerous. Fish, of course, require a certain level of dissolved oxygen for survival. Trout require more than pike; pike require more than suckers; and so on. When sewage is placed into a water course the materials decompose, by using oxygen, to simpler chemical units. Some of these units act as fertilizer, causing an increase of aquatic plant growth. Since plants sup-

Unsightly oil wastes rapidly kill the food organisms on which most fish depend.

ply extra food and shelter, and produce oxygen during the daylight hours, one may consider this to be an advantage. However, plants in turn decompose and use oxygen during the dark hours. Therefore a delicate balance must be maintained. This balance is particularly difficult to maintain in Alberta because of our long, cold winters and the ice cover they bring to our rivers. This ice cover does not allow the natural replenishment of oxygen from the atmosphere.

Domestic sewage may also affect fish because of the many synthetic compounds, e.g. detergents, it contains. Hundreds of these compounds, particularly those of organic nature which were unknown a few years ago, are now in use, and may find their way from your house to the streams, lakes, and rivers of Alberta. The presence of these compounds illustrates one of the serious problems in controlling pollution to protect fish and fish habitats. The effect of a particular chemical compound on a given type of fish is generally known or can be determined. However, the combined effect of many different compounds under many different conditions upon not only the fish but also their food supply is often very difficult to determine. The final criterion can only be the presence or absence of the desired fish in a stream, river or lake.

Industrial wastes may effect fisheries in as many ways as there are types of industry. This could vary from a simple poisoning due to an excess release of a particular toxic compound; to oil spills (which affect fish mainly by killing their food and spoiling their spawning beds); to vegetable cannery waste (which has the same effect as domestic sewage); to a complex effect due to a combination of chemicals or conditions. Fish, like most living things, require certain conditions for continued survival. If these conditions are adversely affected the eggs and sensitive young are the first to feel the effects. This is often the reason for the seeming paradox of being able to catch thriving adult fish in a recently 'polluted' water body.

Another pollution problem which will affect the eggs and young first is the indiscriminate use of pesticides. Pesticides applied to plants and land are often washed into streams. Some of these may accumulate in the biological food chain until they reach a level which will interfere with reproduction or may reduce the ability of the fish to survive in times of stress.

Siltation is a physical form of pollution with great present and future implications for Alberta. It is a dangerous pollutant because it is often not recognized as one. It is true that a certain amount of silt carried in our trout streams during spring runoff and flash floods is natural. This amount, in the volume of water being carried, is generally not harmful to the streams. When this spring freshet has completed its run it has usually scoured and cleaned the stream bed, leaving behind clean gravel. However, if silt, even in small amounts, is then, at low flow, added to the stream, it settles and covers the cracks in the previously clean gravel bed. This covering of the stream bed destroys spawning beds and eliminates the insect life living on and in the gravel. This insect life is the main source of food for many fish, especially trout. This deposition of stream sediment, due to accelerated stream erosion, may be caused by poor agricultural practices (i.e., destroying stream bank cover by overgrazing, spraying, etc.), by mining, by logging (removing the stream bank cover), by seismic line and road construction, and by various other means.

The future will no doubt present ever-increasing pollution threats to our fisheries. Two of these are already known on a small scale, and are feared on a larger scale. The one, thermal pollution, presents a real threat to fish and to other organisms. Allow me to quote Dr. John R. Clark, from the 1969 issue of Scientific American:

> *"Ecologists consider temperature the primary control of life on earth, and fish, which as cold-blooded animals are unable to regulate their body temperature, are particularly sensitive to changes in the thermal environment. Each aquatic species becomes adapted to the seasonal variations in temperature of the water in which it lives, but it cannot adjust to the shock of abnormally abrupt change."*

Generally speaking, an increase in temperature affects fish by raising their metabolic rate or pace of living, thereby creating an increased need for oxygen. A stage is reached where temperature becomes lethal to a certain species of fish, e.g., rainbow trout at approximately 70° F. Up to the present the principal contributor of excess heat in water has been the electric-power industry. If I may again quote Dr. John R. Clark:

> *"The present rate of heat dis-*

A clean gravel bottom is essential for trout. Such areas are necessary for spawning and to support fish food organisms.

Removal of shade-giving vegetation and bank trampling by cattle have made this stream no longer suitable for trout.

charge is not yet of great consequence except in some local situations; what has aroused ecologists is the ninefold expansion of electric-power production that is in prospect for the coming years with the increasing construction of large generating plants fueled by nuclear energy. They waste 60 per cent more energy than fossil-fuel plants, and this energy is released as heat in condenser-cooling water. It is estimated that within 30 years the electric-power industry will be producing nearly two million billion B.T.U.'s of waste heat per day. To carry off that heat by way of natural waters would call for a flow through power plants amounting to about a third of the average daily freshwater runoff in the U.S."

Connected with this problem is the problem of radioactive waste disposal. It is generally well known that radioactive material accumulates in the biological cycle and by continued dosages may reach levels lethal to all types of life.

The fish in this province are regarded as common property. There is an old saying that "Everyone's property is no one's property", the inference being that no one looks after it, that everyone over-uses it, and that the property therefore deteriorates. Is this what your grandchildren want? If we take more care today of the quality of the water in our streams and lakes we will have far fewer pollution problems to face in the future. Fish are not only animals to catch for food and for sport but valuable indicators of water quality.

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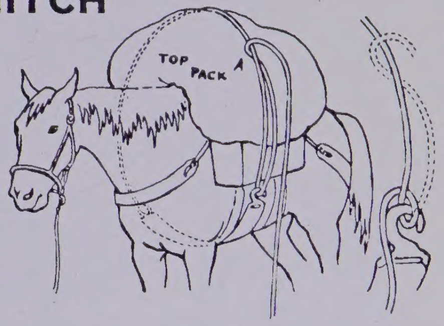
HOW TO
Pack A Horse

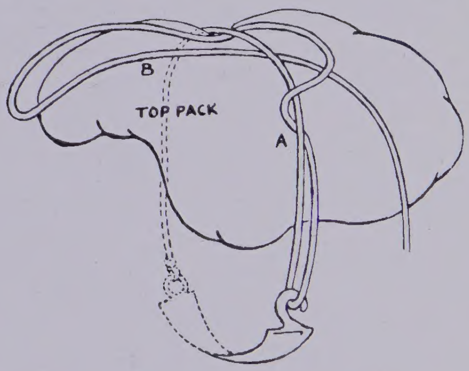
by Archie Pendergraft

THE SINGLE DIAMOND HITCH



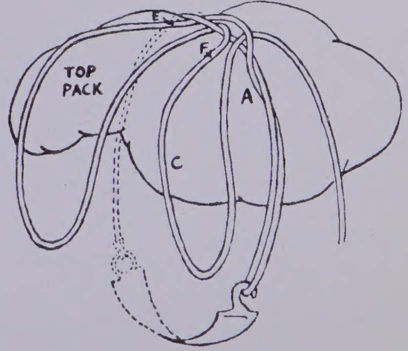
❶ With panniers and top pack in place, lash rope is thrown over top of pack, lash cinch swing under belly.

❷ Point of hook *back,* cinch is hooked in loop formed in lash rope by twist as shown. Twist is lifted to top of pack after hooking cinch, to point "A"

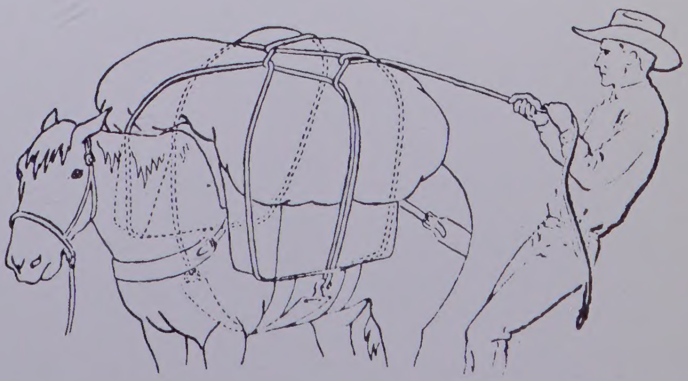


❸ Tuck second loop "B" under rope crossing top pack, from *rear,* and enlarge to make large loop for right side of pack.

❹ Leaving loop "B" hanging on right side of pack, pull third loop "C" from between points "A" and "D." This loop "C" is for left side of pack.



❺ Now pull up on rope at "A" and across at section "E" of loop "B," tightening cinch as much as possible. Section "E" of loop "B" is then taken back, down and under rear of right side pack, and continuing up front of right side pack to center of top pack, where slack is pulled from "B" at point "F" of loop "C." Loop "C" then encircles left side of pack from front to rear.



❻ Final shaping of the "Diamond" and tightening of the hitch is accomplished by pulling back hard on the end of the lash rope, which is then tied under left pack, above the cinch hook.

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